

**REMARKS**

We have carefully considered the Office Action dated November 9, 2004, and we have amended claim 28 to more particularly point out the filtering performed by the current system. As discussed below, we disagree that the cited references combine to make obvious the current invention as set forth in the respective independent claims and the claims that depend therefrom.

The Examiner argues that Raterman and Kariakin are combinable “because they are both concerned with optically scanning a workpiece surface for document **recognition** (and therefore have similar objectives).” [emphasis added] However, only the Raterman reference is concerned with recognition, specifically, with distinguishing between different denominations of currency.

The Raterman currency discrimination and counting system uses the reflectance characteristics of patterns that are **identically printed** on the surface of the respective denominations of currency in order to distinguish between, that is, recognize, the different denominations. See, e.g., Raterman Col. 3, lines 1 et seq. In contrast, the Kariakin system is an authentication system that uses the unique characteristics of the “micro-topology” of an **un-printed** area of a document in order to uniquely identify or authenticate the particular document. See, e.g., Kariakin Page 20, lines 19-21. The Kariakin system, for example, can uniquely identify one note from other notes of the same denomination, while the Raterman system is capable only of determining that the notes are all of the same determination. Thus, there is no teaching to combine the two

systems, which are directed to scanning different features of documents, i.e., printed patterns versus the surface topology of an unprinted area, for different purposes, i.e., recognition versus authentication.

The Raterman system optically scans a pattern printed on a document, to acquire the reflectance characteristics, i.e., variations of the light and dark content, of the printed pattern. See, e.g., Raterman, Col. 6, lines 18-28. Accordingly, the Raterman system scans with relatively low resolution, since it then compares the reflectance characteristics of the printed pattern with stored “master characteristic patterns,” which correspond to the respective patterns that are identically printed on the various denominations of currency. The Raterman system would thus be adversely affected by higher resolution scanning that detects the unique features of the surface topology of the underlying paper. In contrast, the Kariakin system requires the higher scanning resolution in order to detect the unique surface topology features. See, e.g., Kariakin Page 20, lines 4-11. Accordingly, there is a teaching away of using, in the higher-resolution system of Kariakin, a scan head that is designed for the printed pattern scanning operations performed by the Raterman system.

In addition, the Kariakin reference specifically teaches that it is distinctly **advantageous** to determine the micro-topology of an area of a surface “while the surface is illuminated from a single direction.” Kariakin, Page 3, lines 19-21. Further, the Kariakin reference repeatedly refers to scanning the surface when the surface is “sequentially” illuminated from two or more directions, and then combining the various images produced using the sequential illumination. See, e.g., Kariakin Page 3, lines 23-

29; Page 6, lines 29-35; Page 7, lines 1-10; Page 20, lines 13 – 19; Figs. 5 and 6. There is thus no teaching or suggestion of simultaneously illuminating an area of a document in order to determine the features of the surface topology in either the Kariakin reference or the Raterman reference. Further, for all of the reasons discussed above, there is no teaching or suggestion to combine a scan head that is used to scan printed patterns and detect variations in the light and dark components of the printed patterns with a system that performs high resolution scans of unprinted areas of documents.

Further still, the preferred embodiment of the scan head of the Raterman system is relatively complex, including an optical mask 345, multiple sets of LEDs and multiple photodetectors (Figs. 17 and 18) that operate with narrow illumination strips to first detect the start of the printed portion of the currency and then with wider illumination strips to take samples of the reflectance from the printed patterns on the document. See, e.g., Raterman Col. 28, lines 39 et seq. There is no teaching or suggestion in either Raterman or Kariakin to combine with the Kariakin system the relatively complex scan head of the Raterman system. Indeed, the different ways in which the Kariakin and Raterman systems scan a document, looking at printed versus unprinted areas, and also using various widths of illumination strips versus sequential illumination of an area, teach away from such a combination.

If the teachings of Raterman and Kariakin could be meaningfully combined, the result is to add to the Kariakin authentication operations a scanning step that is designed to recognize documents based on the reflectance patterns of what Kariakin refers to as the otherwise undesirable “effects of features that are common to all notes printed alike.”

(Kariakin Page 20, lines 20-21). The scan head of such a combined system would presumably perform different scanning operations on the printed and the unprinted portions of the document with scanning resolutions that are compatible with those operations, in order to discern the patterns of light and dark variations of the printed patterns and the micro-topology of the surface, respectively.

Accordingly, a combination of Kariakin and Raterman does not teach or suggest the invention set forth in independent claims 1, 14 and 42 because, *inter alia*, the combination does not teach or suggest a document authentication system that illuminates at least one portion of a workpiece simultaneously from different directions in order to determine surface topology patterns that are unique to the workpiece.

We have amended independent claim 28 to more particularly point out the filtering performed by the current system. The cited Ghaderi reference describes a technique and system for spatially filtering an image reproduced from microfilm. See, Ghaderi Col. 2, lines 1-8. Presumably, the image is text. See, Ghaderi Col. 1, lines 36-48. Accordingly, there is no teaching or suggestion in Ghaderi of filtering to distinguish signal components that represent taller and deeper surface topographical features from noise and signal components that represent shorter and shallower surface topographical features of a document. Further, there is no teaching or suggestion to combine the filtering system or techniques set forth in Ghaderi for the filtering of text reproduced from microfilm with a system that scans a document to determine the micro-topology of the underlying paper. Indeed, the surface topology of the paper on which the reproduced image, or text, happens to be printed is not of interest to the Ghaderi system, rather it is

the **printed** image or text that is of interest.

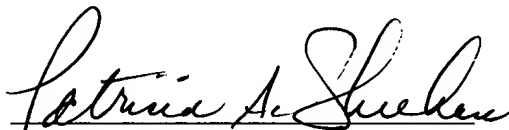
If the teachings of Kariakin and Ghaderi could be meaningfully combined, the result would add to the operations of the Kariakin authentication system a filtering operation that enhances an image of interest which is printed on a given document. Accordingly, such a combination does not teach or suggest the invention as set forth in independent claim 28, as amended, and the claims that depend therefrom.

We do not specifically address the Examiner's rejections of the dependent claims. This should not be construed as acquiescence to the rejections, but as recognition that the rejections are moot based on our remarks regarding the allowability of the respective independent claims from which the rejected claims depend.

The claims, as amended, should now be in form for allowance. We respectfully request that the Examiner reconsider his rejections and issue a Notice of Allowance for all pending claims.

Please charge any fee occasioned by this paper to our Deposit Account  
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Respectfully submitted,



Patricia A. Sheehan  
Reg. No. 32,301  
CESARI AND MCKENNA, LLP  
88 Black Falcon Avenue  
Boston, MA 02210-2414  
(617) 951-2500